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IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION

LIQUID DYNAMICS CORP., )  
                            )  
Plaintiff,             ) No. 01 C 6934  
                            )  
v.                         ) Suzanne B. Conlon, Judge  
                            )  
VAUGHAN COMPANY, INC. )  
                            )  
Defendant.             )

**MEMORANDUM OPINION & ORDER**

Liquid Dynamics Corporation (“Liquid Dynamics”) sued Vaughan Company, Inc. (“Vaughan”) for infringement of U.S. Patent No. 5,458,414 (“the ‘414 patent”) pursuant to 35 U.S.C. § 271 *et seq.* Specifically, Liquid Dynamics claimed Vaughan’s “RotaMix” commercial mixing system used the invention described in the ‘414 patent to prevent settling and separation of liquid and solid components stored in slurry tanks. Vaughan counterclaimed for invalidity and inequitable conduct.

Jury trial commenced on October 18, 2004. Vaughan’s motion for judgment as a matter of law at the close of Liquid Dynamics’ case, and both parties’ motions for judgment as a matter of law at the close of evidence, were denied. Dkt. Nos. 200, 206. On October 25, 2004, the jury returned a \$1,183,722.00 verdict in Liquid Dynamics’ favor on the willful infringement and invalidity claims. Dkt. No. 206. Vaughan’s renewed motions for judgment as a matter of law, a new trial, and to amend the answer and counterclaims to conform to the evidence were denied. Dkt. No. 213. On November 12, 2004, the court granted Liquid Dynamics’ motion for judgment as a matter of law on

the inequitable conduct claim. Dkt. No. 207. Judgment was entered November 15, 2004. Dkt. No. 208.

Before the court are Liquid Dynamics' post-trial motions: (1) to register the judgment in other districts; (2) for prejudgment and post-judgment interest; (3) for a permanent injunction; and (4) to amend the judgment by merging the relief granted in the original judgment with any relief granted by the post-trial motions.

## DISCUSSION

### I. Motion to Register Judgment in Other Districts

Liquid Dynamics moves to register the November 15 judgment, and all subsequent judgments, against Vaughan in other districts pursuant to 28 U.S.C. § 1963. Liquid Dynamics asserts good cause warrants immediate registration in the State of Washington where a majority of Vaughan's assets to satisfy the judgment are located.

28 U.S.C. § 1962 provides that a judgment rendered by a district court becomes a lien against the defendant's property located within the state. In addition:

A judgment in an action for the recovery of money or property entered in any . . . district court . . . may be registered by filing a certified copy of such judgment in any judicial district . . . when the judgment has become final by appeal or expiration of the time for appeal or when ordered by the court for good cause.

28 U.S.C. § 1963. The commentary to Section 1963 provides good cause may exist upon "a mere showing . . . that the defendant has substantial property in the other [foreign] district and insufficient in the rendering district to satisfy the judgment." *See also Assoc. Bus. Tel. Sys. Corp. v. Greater Capital Corp.*, 128 F.R.D. 63, 68 (D.N.J. 1989).

On December 16, 2004, the court entered the parties' agreed order, staying enforcement of the monetary judgment pending appeal and approving Vaughan's letter of credit. *See* Dkt. No. 234. The basis for Liquid Dynamics' motion to register the judgment – Vaughan's alleged inability to satisfy the judgment – is moot in light of Liquid Dynamics' acceptance of Vaughan's irrevocable standby letter of credit in Liquid Dynamics' favor. The motion to register the judgment in other districts must be denied because Liquid Dynamics fails to establish good cause under § 1963.

## **II. Motion for Prejudgment and Post-judgment Interest**

### **A. Prejudgment Interest**

Liquid Dynamics seeks prejudgment interest in the amount of \$139,604.34. Prejudgment interest is presumptively available for violations of federal law. *See Gorenstein Enterprises, Inc. v. Quality Care U.S.A., Inc.*, 874 F.2d 431, 436 (7th Cir. 1989). "Prejudgment interest is normally designed to make the plaintiff whole and is part of the actual damages sought." *Monessen S.R. Co. v. Morgan*, 486 U.S. 330, 335 (1988) (citations omitted); *General Motors, Corp. v. Devex Corp.*, 461 U.S. 648, 656-57 (1983). Prejudgment interest compensates for the plaintiff's loss of the use of its money. *See General Motors*, 461 U.S. at 654-56; *First Nat'l Bank of Chicago v. Standard Bank & Trust*, 172 F.3d 472, 480 (7th Cir. 1999). "Prejudgment interest is not awarded as a penalty; it is merely an element of just compensation." *City of Milwaukee v. Cement Div. Nat'l Gypsum Co.*, 515 U.S. 189, 197 (1995). An aggrieved patent holder is entitled to complete compensation, including prejudgment interest, under 35 U.S.C. § 284. *See C&F Packing Co. v. IBP, Inc.*, 224 F.3d 1296, 1305 (Fed. Cir. 2000); *see also General Motors*, 461 U.S. at 657 ("we hold only that prejudgment interest should be awarded under § 284 absent some justification for withholding such an award").

Vaughan contends prejudgment interest is inappropriate because the jury's damages award is excessive and justifies *remititur* or a new trial. Further, Vaughan argues prejudgment interest is inappropriate because this was a close case. Vaughan's arguments are irrelevant to the prejudgment interest analysis. Vaughan's objections inappropriately rehash its previously denied motion for *remititur* and a new trial. See Dkt. No. 213. Further, the amount of the damages award does not constitute a basis for denying prejudgment interest. See *Amsted Ind., Inc. v. Buckeye Steel Castings Co.*, No. 88 C 0924, 1990 U.S. Dist. LEXIS 16657, \*8 (N.D. Ill. Dec. 6, 1990). Finally, even if this were a close case, "uncertainty about the outcome of a case should not preclude an award of interest . . . the existence of a legitimate difference of opinion on the issue of liability is merely a characteristic of most ordinary lawsuits. It is not an extraordinary circumstance that can justify denying prejudgment interest." *City of Milwaukee*, 515 U.S. 189 at 197-98.

Interest should be awarded at an average of the prime rate for the years in question. See *Cement Div. Nat'l Gypsum v. City of Milwaukee*, 31 F.3d 581, 587 (7th Cir. 1994), aff'd, 515 U.S. 189 (1995). Prejudgment interest should be compounded on a monthly basis. See e.g., *Lampi Corp. v. American Power Prods., Inc.*, No. 93 C 1225, 2004 U.S. Dist. LEXIS 14049, \*22-24 (N.D. Ill. July 22, 2004); *Chemetall GmbH v. ZR Energy, Inc.*, No. 99 C 4334, 2001 U.S. Dist. LEXIS 23716, \*55-56 (N.D. Ill. Sept. 18, 2001). The formula to calculate prejudgment interest compounded on a monthly basis is "A= P(1+r/12)<sup>n</sup> \* (1+(rd/360))-P," where "A" denotes the amount of interest, "P" denotes the amount of principal, "r" represents the annual interest rate, "n" reflects the number of months during the period, and "d" represents the number of days for the last partial month for which interest is being calculated. See *Chemetall*, 2001 U.S. Dist. 23716 at \*60-61.

Liquid Dynamics submits evidence obtained from the Federal Reserve Bank of New York establishing the applicable prime rates as:

Beginning Date	Prime Rate
12/12/01	4.75%
11/07/02	4.25%
06/27/03	4.00%
07/01/04	4.25%
08/11/04	4.50%

Mot. at Ex. C. For convenience, Liquid Dynamics advocates application of a 4.25% rate, slightly lower than the 4.35% prevailing average rate, to the entire prejudgment interest period. Because the jury's verdict apparently included interest through March 30, 2002,<sup>1</sup> Liquid Dynamics contends prejudgment interest should be calculated from March 31, 2002 through November 15, 2004 at a 4.25% rate compounded monthly. Applying the formula to the \$1,183,722 jury award from March 31, 2002 through November 15, 2004, where P=\$1,183,722, r=0.0425, n=31, and d=16, the prejudgment interest amount is \$139,604.34. Vaughan does not challenge the prejudgment interest calculations. Liquid Dynamics is entitled to prejudgment interest in the amount of \$139,604.34.

#### B. Post-Judgment Interest

Liquid Dynamics seeks post-judgment interest pursuant to 28 U.S.C. § 1961. Section 1961 provides for post-judgment interest awards in all federal cases. See *Chemetall*, 2001 U.S. Dist. 23716 at \*63-64. Specifically, Section 1961 provides:

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<sup>1</sup> Liquid Dynamics' expert witness calculated damages with interest through March 2002. See Mot. Ex. D. The jury's verdict mirrored the expert's total damages opinion. See Mot. Ex. A.

Interest shall be allowed on any money judgment in a civil case recovered in a district court. . . [s]uch interest shall be calculated from the date of the entry of the judgment, at a rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the date of the judgment . . . interest shall be computed daily . . . and shall be compounded annually.

28 U.S.C. § 1961(a)-(b).

Vaughan objects that a post-judgment interest award is premature because it believes the jury's verdict will be set aside on appeal and because Fed. R. App. P. 37 provides a mechanism for the appellate court to award post-judgment interest. These arguments are rejected. Appellate Rule 37 applies to all monetary judgments in civil cases that are affirmed and to judgments modified by the appellate court with direction to enter a money judgment in the district court. See 20A James Wm. Moore et al., *Moore's Federal Practice* § 337.10. The rule clarifies that the accrual of post-judgment interest may be affected by the appellate court's disposition of the appeal. *Id.* at § 337.02. While an appeal is pending, the parties may file a motion for post-judgment interest directly with the district court. *Id.* at § 337.10; see also *Graefenhain v. Pabst Brewing Co.*, 870 F.2d 1198, 1211 (7th Cir. 1989) (remanded for district court to rule on Rule 60(b) motion for interest).

The formula used to calculate daily interest for the entire post-judgment period is "P(r/365)\*d," where "P" is the principal unamended judgment amount, "r" is the annual interest rate, and "d" is the number of days for which interest is being calculated. See *Chemetall*, 2001 U.S. Dist. 23716 at \*64-65. The weekly average 1-year constant maturity Treasury yield for the calendar week ending November 12, 2004 (end of calendar week preceding November 15 judgment) is 2.47%. See [www.federalreserve.gov/releases/h15](http://www.federalreserve.gov/releases/h15). Applying the post-judgment interest formula, where P=\$1,183,722 and r=0.0247, the *per diem* interest rate is \$80.10. Vaughan does not challenge the

post-judgment interest calculations. Liquid Dynamics is entitled to post-judgment interest on the \$1,183,722 judgment at a *per diem* interest rate of \$80.10.

### **III. Motion for Permanent Injunction**

#### **A. Proposed Injunctions and Objections**

Pursuant to 35 U.S.C. § 283 and Fed. R. Civ. P. 65, Liquid Dynamics seeks a permanent injunction enjoining Vaughan from infringing the '414 patent. In its motion, Liquid Dynamics proposes an injunction that:

- (1) permanently enjoins Vaughan and its respective officers, agents, servants, employees and attorneys, and those parties in active concert or participation with them from infringing U.S. Patent No. 5,458,414, either directly or indirectly, including by making, using, offering to sell, importing, or selling mixing systems employing the design(s), placement(s) and orientation(s) of nozzle assemblies as in the mixing systems found to infringe U.S. Patent No. 5,458,414, as specified in trial exhibit PX9, a copy of which is attached hereto as Exhibit 1, as well as colorable imitations of such infringing systems.

Mot. at Ex. 1.

Vaughan objects on the ground that an injunction is unwarranted. Vaughan asserts Liquid Dynamics has received an adequate legal remedy in money damages, and the proposed injunction is manifestly overbroad. Further, Vaughan objects to the proposed injunction's incorporation of a trial exhibit, in violation of Rule 65's parameters, and its extra-territorial application in perpetuity. Vaughan contends Liquid Dynamics' attempt to enjoin future infringement of the entire '414 patent and "colorable imitations" is inappropriate because Liquid Dynamics only asserted infringement of Claims 1 and 8 at trial and waived infringement under the doctrine of equivalents. According to Vaughan, Liquid Dynamics' requested injunction would dramatically impact the public interest by requiring the immediate halt of numerous municipal wastewater treatment plants. Finally, Vaughan

objects to Liquid Dynamics' proposed injunction as seeking relief against the use and sale of 47 designs when only 9 designs were found to infringe. Accordingly, should the court determine injunctive relief is warranted, Vaughan proposes an injunction that:

2. Vaughan and its respective officers, agents, servants, employees, and those parties in active concert or participation with them are permanently enjoined from the manufacture and sale of mixing systems literally infringing claims 1 or 8 of U.S. Patent No. 5,458,414 by including flow generating means positioned and operated to generate a substantial helical flow path of at least one solid slurry component having flow generating means located between 25 and 75% of the radius of a generally circular sludge storage tank. This injunction shall expire and have no force or effect if the '414 patent expires or is deemed unenforceable or invalid. In no event shall this injunction last beyond October 17, 2012;
3. Pursuant to 35 U.S.C. § 271(f), and subject to the restrictions set forth in paragraph 2 above, Vaughan is enjoined from supplying or causing to be supplied from or within the United States all or a substantial component of any device that if combined within the United States would infringe either claims 1 or 8 literally. This injunction shall expire and have no force or effect if the '414 patent expires or is deemed unenforceable or invalid. In no event shall this injunction last beyond October 17, 2012.

Resp. at Ex. 2.

In reply, Liquid Dynamics revises its proposed injunction to read:

(1) permanently enjoins Vaughan and its respective officers, agents, servants, employees and attorneys, and those parties in active concert or participation with them from infringing U.S. Patent No. 5,458,414, *until the expiration thereof*, either directly or indirectly, including by making, using, offering to sell, importing, or selling mixing systems employing the design(s), placement(s) and orientation(s) of nozzle assemblies as in the mixing systems found to infringe U.S. Patent No. 5,458,414, as well as colorable imitations of such infringing systems.

Reply at Ex. 1 (emphasis added).

## B. Court Findings

Courts have broad discretion to determine the scope of injunctive relief. *Carborundum Co.*

v. *Molten Metal Equip. Innovations, Inc.*, 72 F.3d 872, 881 (Fed. Cir. 1995). However, the

injunction must comply with Rule 65. *See Additive Controls & Measurement Sys. v. FlowData*, 986 F.2d 476, 479 (Fed. Cir. 1993). Rule 65(d) provides:

Every order granting an injunction . . . shall set forth the reasons for its issuance; shall be specific in terms; shall describe in reasonable detail, and not by reference to the complaint or other document, the act or acts sought to be restrained; and is binding only upon the parties to the action, their officers, agents, servants, employees and attorneys, and upon those persons in active concert or participation with them who receive actual notice of the order by personal service or otherwise.

District courts may grant injunctive relief to “prevent the violation of any right secured by patent.” 35 U.S.C. § 283. Indeed, “[i]t is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it.” *W.L. Gore Assoc., Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1281 (Fed. Cir. 1988); *see also Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1247 (Fed. Cir. 1989) (once infringement is established, it is contrary to the laws of property to deny patentee’s right to exclude others from the use of its property); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (same); *Facilitec Corp. v. Grease Stopper, Inc.*, No. 01 C 2971, 2003 U.S. Dist. LEXIS 13708, \*13-14 (N.D. Ill. Aug. 6, 2003) (same).

There is no sound reason to deny injunctive relief. Vaughan asserts the injunction is unwarranted because Liquid Dynamics received an adequate remedy in the form of money damages and an injunction would amount to double recovery. This argument is unsupported and borders frivolity. Federal law explicitly permits both injunctive relief, 35 U.S.C. § 283, and money damages, 35 U.S.C. § 284, to compensate a patentee for infringement. Vaughan’s claim that an injunction would dramatically impact the public interest must also be rejected. Courts rarely deny injunctive relief to protect the public interest, and there has been no showing of a public health danger or that Liquid Dynamics does not practice its patented invention. *See e.g., Rite Hite Corp. v. Kelley Co.*,

56 F.3d 1538, 1547-48 (Fed. Cir. 1995). Vaughan's contention that the injunction may not enjoin its attorneys is rejected because it is contrary to the express terms of Rule 65(d).

Many of Vaughan's remaining arguments opposing injunctive relief seek to re-litigate the merits of its case. For example, Vaughan: (1) criticizes testimony proffered by Liquid Dynamics' expert; (2) contends the enjoined mixing systems must have nozzles located between 25 and 75% of the tank's radius based on inadequate evidence offered by Liquid Dynamics at trial to enjoin systems with other parameters; (3) argues the injunction should not issue because "the jury's verdict of infringement is on shaky evidentiary grounds, and not supported by the evidence;" and (4) asserts "the jury's verdict as to foreign systems is certainly not supported by the evidence and Vaughan has appealed the Court's denial of JMOL as to these systems." Resp. at 3-4, 10. Vaughan's arguments simply ignore the realities and results of the trial.

Nevertheless, an injunction must be specific and describe the acts sought to be restrained. An injunction that simply prohibits future patent infringement is overbroad. *See Int'l Rectifier Corp. v. IXYS Corp.*, 383 F.3d 1312, 1316 (Fed. Cir. 2004); *Additive Controls*, 986 F.2d at 479 (two sentence injunction stating "plaintiff is forever barred from infringing Flowdata's patent," insufficient to satisfy requirements of Rule 65). In *Int'l Rectifier*, the Federal Circuit vacated an injunction enjoining "any device covered by one or more of Claims 1 through 5 of U.S. Patent No. 6,476,481." *See* 383 F.3d at 1315. The court held the injunction applied to many more devices than those actually adjudicated, including any device made or sold by the defendant that fell within the scope of the patent claims:

The actual scope of the injunction cannot be that expansive, however, because this court has held that contempt proceedings . . . are available only with respect to devices previously admitted or adjudged to infringe, and to other devices which are

no more than colorably different therefrom and which clearly are infringements of the patent. Therefore, the only acts the injunction may prohibit are infringement of the patent by the adjudicated devices and infringement by devices not more than colorably different from the adjudicated devices. In order to comply with Rule 65(d), the injunction should explicitly proscribe only those specific acts.

*Id.* at 1316 (internal citations omitted).

Liquid Dynamics relies on *Signtech USA, Ltd. v. Vutek, Inc.*, 174 F.3d 1352, 1359 (Fed. Cir. 1999) to argue the proposed injunction meets Rule 65(d)'s requirements because of the detailed record supporting the jury's infringement verdict. In *Signtech*, an order establishing "a permanent injunction against [Signtech] for any further infringement of the '522 patent," was permitted to stand where "danger of unwarranted contempt actions is minimal, if not completely non-existent, because of the detailed record on which this injunction was issued." *Id.* However, the Federal Circuit rejected this argument in *Int'l Rectifier*, reiterating *Additive Controls'* rule requiring specific injunctions that comply with Rule 65. *See* 383 F.3d at 1317.

Accordingly, the court may only enjoin the devices adjudicated to infringe. Vaughan contends Liquid Dynamics only offered proof on 9 of the 47 accused designs, therefore the jury only found infringement on 9 designs. This argument belies the evidence. Liquid Dynamics' expert witness, Edward Gillette, Jr., specifically testified about the 47 accused designs. *See* Mot. Ex. 9 (Tr. 11:14-30:16). Further, PX 9 is a group exhibit depicting the 47 accused designs. Mot. Ex. 2. While the jury verdict did not specify which designs infringed the claims, the jury award reflects the reasonable royalty Liquid Dynamics argued was appropriate based on all infringing devices. *See* Mot. Exs. 3-4. The evidence introduced by Liquid Dynamics clearly supports an injunction on Vaughan's 47 accused devices. Specific incorporation of PX 9 by the injunction is inappropriate in light of Rule 65's mandate that the acts sought to be restrained not be described by reference to

another document. An injunction should specifically enjoin acts that infringe Claims 1 and 8 of the patent, as opposed to the entire '414 patent, as the infringement case was limited to those claims.

Pursuant to 35 U.S.C. § 283 and Rule 65, the court:

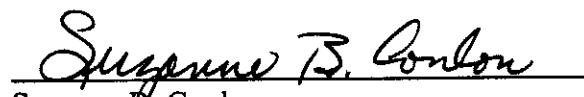
- (1) permanently enjoins Vaughan, its officers, agents, servants, employees and attorneys, and parties in active concert or participation with them, from directly or indirectly infringing Claims 1 and 8 of U.S. Patent No. 5,458,414, until the patent expires, by making, using, offering to sell, importing, or selling mixing systems employing the design(s), placement(s) and orientation(s) of nozzle assemblies used by the 47 mixing systems found to infringe Claims 1 and 8 of U.S. Patent No. 5,458,414, as well as colorable imitations of the infringing systems;
- (2) orders Vaughan to give notice of this permanent injunction to its officers, agents, servants, employees and attorneys, and to parties in active concert or participation with them in the manufacture, marketing, sales and use of mixing systems enjoined by this permanent injunction; and
- (3) retains jurisdiction over the parties for enforcement of the permanent injunction and adjudication of any contempt proceedings or issues arising under this order.

#### **IV. Motion to Amend the Judgment**

Liquid Dynamics moves for entry of an amended judgment, merging the relief granted by the November 15, 2004 judgment with that granted by this order. The motion to amend is granted.

February 22, 2005

ENTER:

  
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Suzanne B. Conlon  
United States District Judge